**Motion and Sound**

**3-5 The student will demonstrate an understanding of how motion and sound are affected by a push and pull on an object and the vibration of an object (Physical Science)**

**3-5.2 Compare the motion of common objects in terms of speed and direction.**
**Taxonomy level:** 2.6-B Understand Conceptual Knowledge

**Previous/Future knowledge:** In 1st grade (1-5.4), students illustrated ways in which objects can move in terms of direction and speed (including straight forward, back and forth, fast or slow, zigzag, and circular). Students will further develop this concept quantitatively in 5th grade (5-5.2) when they will summarize the motion of an object in terms of position, direction, and speed, and they will use a graph to illustrate the motion of an object (5-5.5).

**It is essential for students to** know that motion can be described in terms of speed and direction.

*Direction*
- Direction is the path/course along which something is moving.
- Examples of terms that describe the direction of a moving object relative to another object are: "up," "down," "left," "right," "north," "south," "east," "west."

*Speed*
- *Speed* is how fast an object moves.
- Faster objects move a greater distance than slower objects in a certain period of time.
- For example, if a toy car moves a greater distance than another toy car in one minute, then its speed is greater.

**It is not essential for students to** know how to calculate the speed if given the time and distance measurements or to identify direction of an object from a compass rose on a map.

**Assessment Guidelines:**
The objective of this indicator is to *compare* the motion of several objects in terms of their speeds and directions; therefore, the primary focus of assessment should be to detect similarities and differences between faster or slower objects and the direction of travel of those objects. However, appropriate assessments should require students to *illustrate* the slower and faster moving objects with pictures, diagrams, or words; *recognize* from pictures or diagrams which object is moving faster or slower; or *recognize* which direction objects are moving relative to other objects.